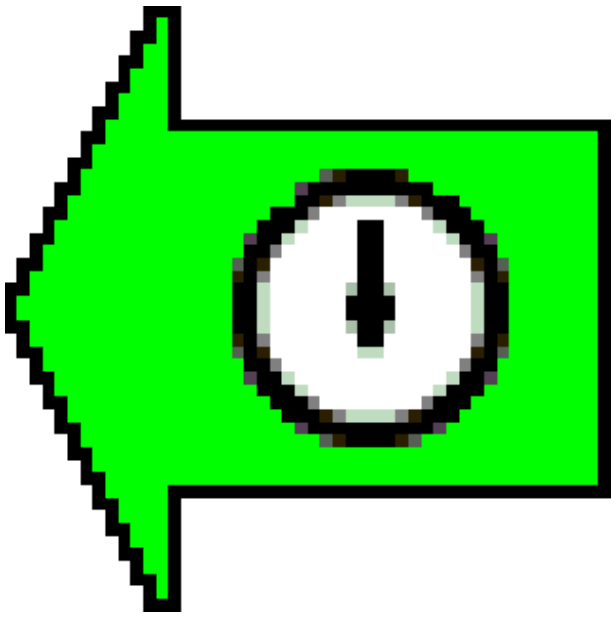

GMT v1.04

User Manual

© John Romaya March 2012

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Sourcecode acknowledgements

GMT was developed with the use of the FIT sdk (software development kit), distributed by ANT Wireless (http://www.thisisant.com), a division of Dynastream Innovations Inc., a wholly owned subsidiary of Garmin® International.

Commercial Credits

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Google™ Earth is a service provided by Google Inc. (“Google”), located at 1600 Amphitheatre Parkway, Mountain View, CA 94043, United States.

What does GMT do ?

GMT is a utility to calculate "moving time" as opposed to "stopped time" from an activity recorded on a Garmin® GPS fitness device.

As an example, consider a case when you have gone for a run, but had to stop several times at road crossings. GMT lets you separate your run into "moving time" and "stopped time".

You can view a report of your activity in metric or statute units, set the accuracy (as number of decimal places), view either speed (e.g. kilometres per hour) or pace (e.g. minutes per kilometre) and also set the threshold speed above which you will be deemed to have been "moving".

You can also segment your activity into a series of units of a user-definable distance and view statistics for each segment.

".gpx" and "tcx" files

GMT works on ".gpx" and "tcx" files which you can create from Garmin® Training Center (see Appendix A - Exporting ".gpx" and "tcx" files from Garmin® Training Center).

A ".gpx" contains detailed information about fitness activities, including your precise location at different times during each activity. A ".gpx" file can contain just a single activity or it may contain many activities. You can load a ".gpx" file into Google™ Earth to locate the activity on Google™ Earth imagery (see Appendix A).

A ".tcx" file contains a bit more information than a ".gpx" file but it cannot be loaded into Google™ Earth.

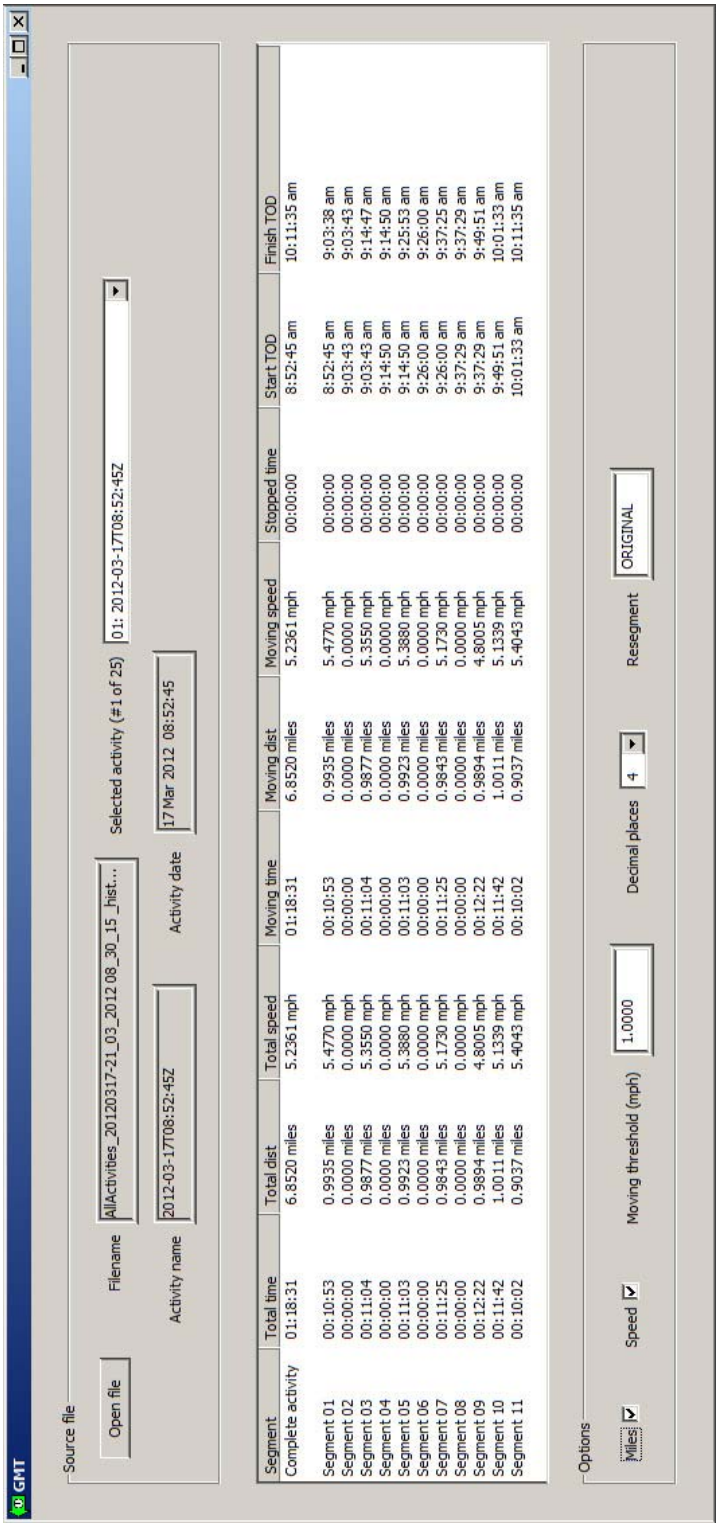
Depending on the settings on your Garmin® GPS fitness device each activity in a ".gpx" or a ".tcx" file may be split up into a number of "segments". For example, each activity may be split up into segments corresponding to mile sections.

".fit" files

GMT also accepts ".fit" files which are created directly by your Garmin® GPS fitness device. The ".fit" files contain a bit more information than the ".gpx" files but they cannot be loaded into Google™ Earth.

The GMT Dialog

The full GMT dialog is shown below:-



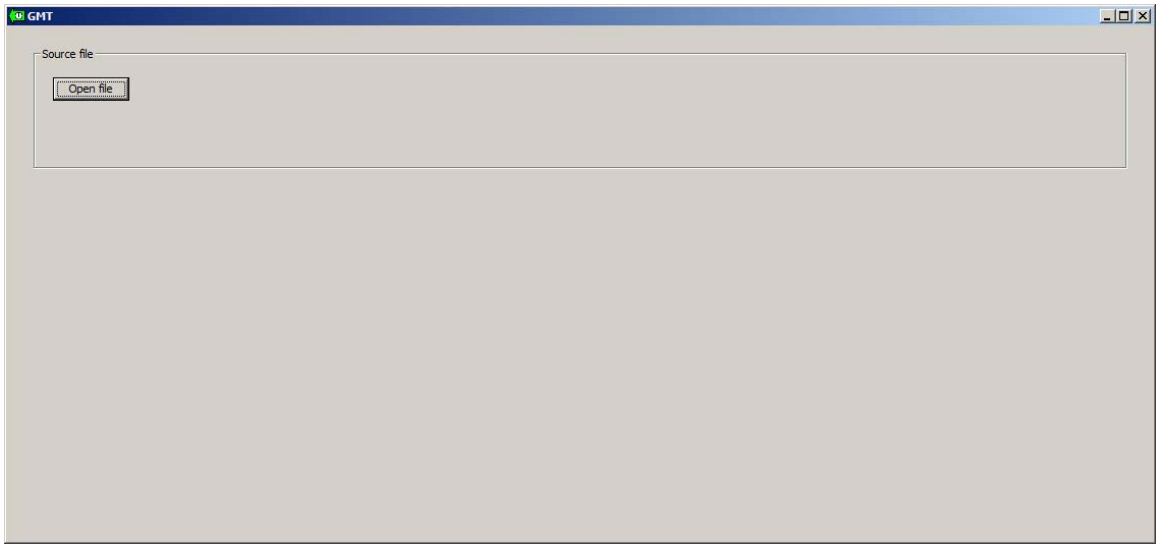
The upper section shows information about the source ".gpx", ".tcx" or ".fit" file which has been loaded and which activity you are viewing.

The middle section contains the report which shows the breakdown and statistics of the currently selected activity.

The lower section contains user-selectable options which allow you to customize the information you are viewing. For example, you can view the data either in metric units (kilometres) or statute units (miles).

Source file information

When you first start the only thing you can do is open a file. Click on the "Open file" button and select a ".gpx", ".tcx" or a ".fit" file to view.:-



Once a source file has been successfully opened, GMT remembers the folder where it was located and will start in that same folder the next time you want to open a source file.

The "Source file" section displays the following information:-

Filename
The name of the currently opened file.

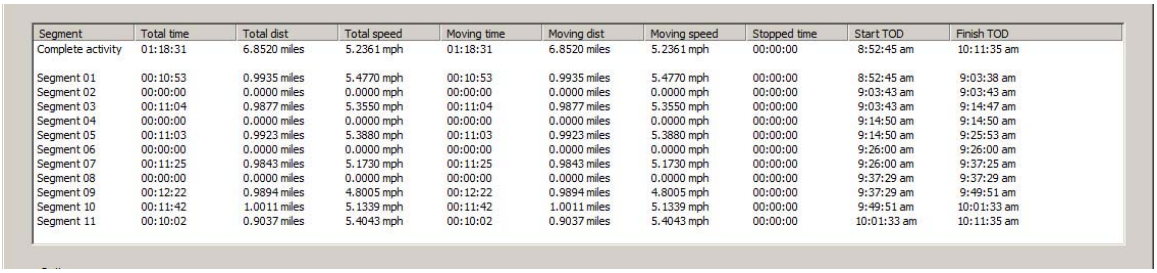
Selected activity
If the file only contains a single activity, this item is not present. Otherwise it gives you a drop-down list where you can select which activity to view.

Activity name
The name of the currently selected activity. Usually this is based on the date and time of the activity.

Activity date
The date and time of the currently selected activity.

Activity report

The activity report lists statistics about the currently selected activity:-



Segment	Total time	Total dist	Total speed	Moving time	Moving dist	Moving speed	Stopped time	Start TOD	Finish TOD
Complete activity	01:18:31	6.8520 miles	5.2361 mph	01:18:31	6.8520 miles	5.2361 mph	00:00:00	8:52:45 am	10:11:35 am
Segment 01	00:10:53	0.9935 miles	5.4770 mph	00:10:53	0.9935 miles	5.4770 mph	00:00:00	8:52:45 am	9:03:38 am
Segment 02	00:00:00	0.0000 miles	0.0000 mph	00:00:00	0.0000 miles	0.0000 mph	00:00:00	9:03:43 am	9:03:43 am
Segment 03	00:11:04	0.9877 miles	5.3550 mph	00:11:04	0.9877 miles	5.3550 mph	00:00:00	9:03:43 am	9:14:47 am
Segment 04	00:00:00	0.0000 miles	0.0000 mph	00:00:00	0.0000 miles	0.0000 mph	00:00:00	9:14:50 am	9:14:50 am
Segment 05	00:11:03	0.9923 miles	5.3880 mph	00:11:03	0.9923 miles	5.3880 mph	00:00:00	9:14:50 am	9:25:53 am
Segment 06	00:00:00	0.0000 miles	0.0000 mph	00:00:00	0.0000 miles	0.0000 mph	00:00:00	9:26:00 am	9:26:00 am
Segment 07	00:11:25	0.9843 miles	5.1730 mph	00:11:25	0.9843 miles	5.1730 mph	00:00:00	9:26:00 am	9:37:25 am
Segment 08	00:00:00	0.0000 miles	0.0000 mph	00:00:00	0.0000 miles	0.0000 mph	00:00:00	9:37:29 am	9:37:29 am
Segment 09	00:12:22	0.9894 miles	4.8005 mph	00:12:22	0.9894 miles	4.8005 mph	00:00:00	9:37:29 am	9:49:51 am
Segment 10	00:11:42	1.0011 miles	5.1339 mph	00:11:42	1.0011 miles	5.1339 mph	00:00:00	9:49:51 am	10:01:33 am
Segment 11	00:10:02	0.9037 miles	5.4043 mph	00:10:02	0.9037 miles	5.4043 mph	00:00:00	10:01:33 am	10:11:35 am

Information is in tabular format with rows and columns. Each column shows a certain statistic about the activity; for example the time of day of the start of the activity. Each row corresponds to a particular segment. The first row always shows data for the complete activity. If the activity is split into segments, information for each segment appears on successive rows. The report can be configured by the user using the "Options" as required so some of the column headings can show the same data in different ways. For example, the user can select speed (e.g. miles per hour) or pace (e.g. minutes per mile). The different column headings are:-

Segment
This identifies the segment number if the activity is broken down into segments. The first segment is always the complete activity.

Total time
This is the total time which includes the time spent moving and the time while stopped.

Total distance
The total time duration of the segment.

Total speed/pace
This is the overall speed or pace of the segment which includes the full duration of the segment.

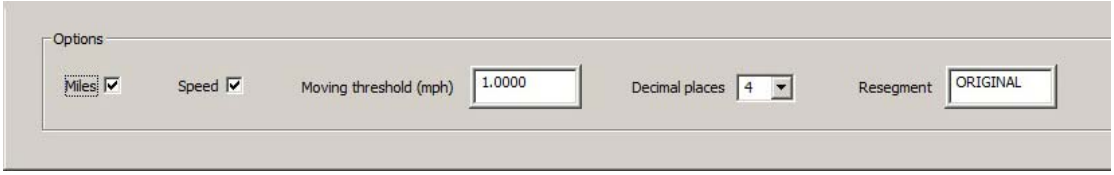
Moving time, distance, speed/pace
These columns just include the time spent "moving". In fact you are able to define what is "moving" and what is "stopped" by setting a "moving threshold" (see "Options"). Even when you are completely stationary, there will be a small movement recorded by the GPS device because there is a small "jitter" in the positions calculated from the satellite signals. So a "moving threshold" speed is used. Any time you are moving faster than the "moving threshold" you are deemed to be "moving" and any time you are moving slower you are "stopped". The "moving distance" is not the same as the "total distance" because some small movement is recorded even when you are in the "stopped" category.

Stopped time
This shows the time spent "stopped". To be more precise this records the time when you were moving slower than the "moving threshold" (see Options).

StartTOD, FinishTOD
These values give the time of day of the start and finish of each segment.

Options

The "Options" section allows you to customize the report:-



You can set the following values:-

Miles
Set this checkbox to view information in statute units (miles). Clear it to view metric units (kilometres). All values in the GMT dialog will change if you change this setting.

Speed
Set this checkbox to view speeds (e.g. miles per hour, kilometres per hour). Clear it to view pace (e.g. minutes per mile, minutes per kilometre). So, for example a speed of 6 miles per hour corresponds to a pace of 10 minutes per mile.

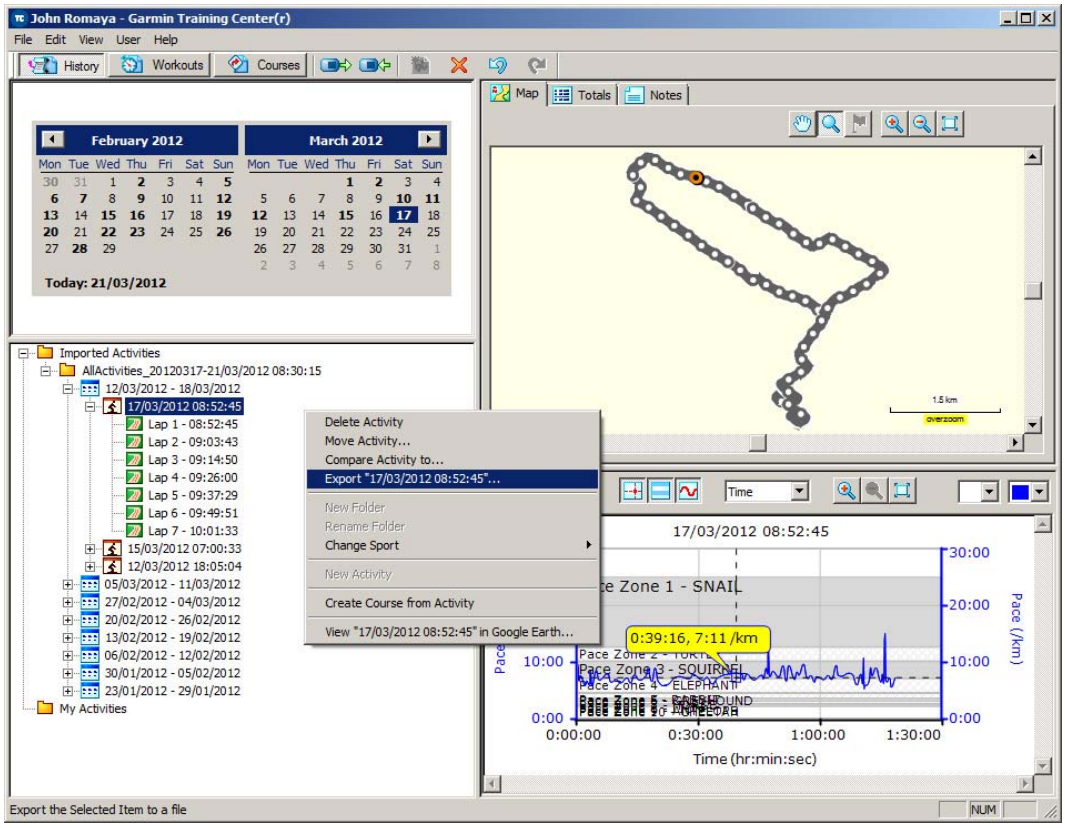
Moving threshold
This value defines a threshold speed (or pace). Any time you are moving faster than this threshold you will be deemed to be "moving". If you are moving slower you are "stopped". This threshold is used to calculate the "Moving time" for the activity report. A threshold is necessary, rather than simply looking for being absolutely still. If you are stopped at lights, you may still move slowly. Even when you are completely stationary, there will be a small movement recorded by the GPS device because there is a small "jitter" in the positions calculated from the satellite signals. Using a threshold allows meaningful "moving" statistics to be calculated. You can enter your own value here or you can use the default value of 1 mph (= 60' 00" per mile).

Decimal places
Here you can specify the number of decimal places displayed for values in the activity report.

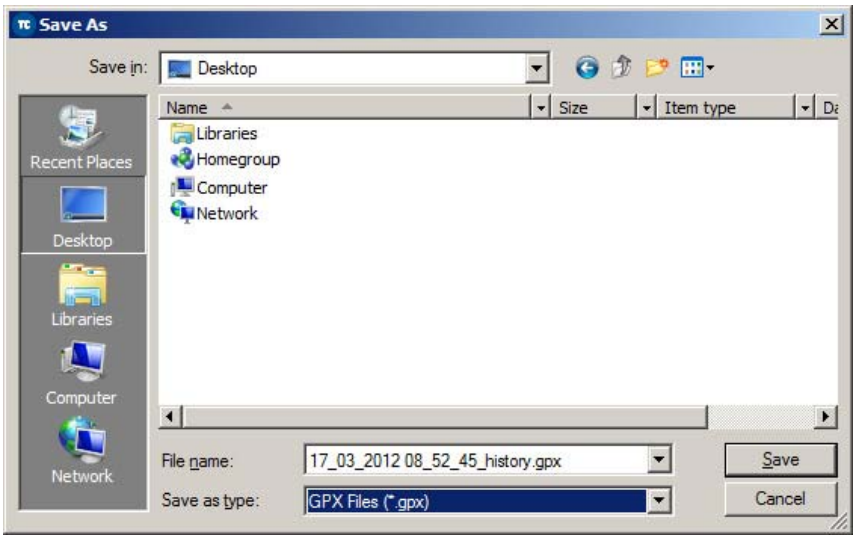
Resegment
Here you can select a distance to re-segment your data. For example, if you select 0.5 kilometres, new segments will be generated with each segment being a total distance of 500 metres. Type in "Original" or "0" (zero) to revert to the original segment settings in the source file.

Appendix A
Exporting ".gpx" and ".tcx" files from Garmin® Training Center

You can export ".gpx" and ".tcx" files from Garmin® Training Center:-

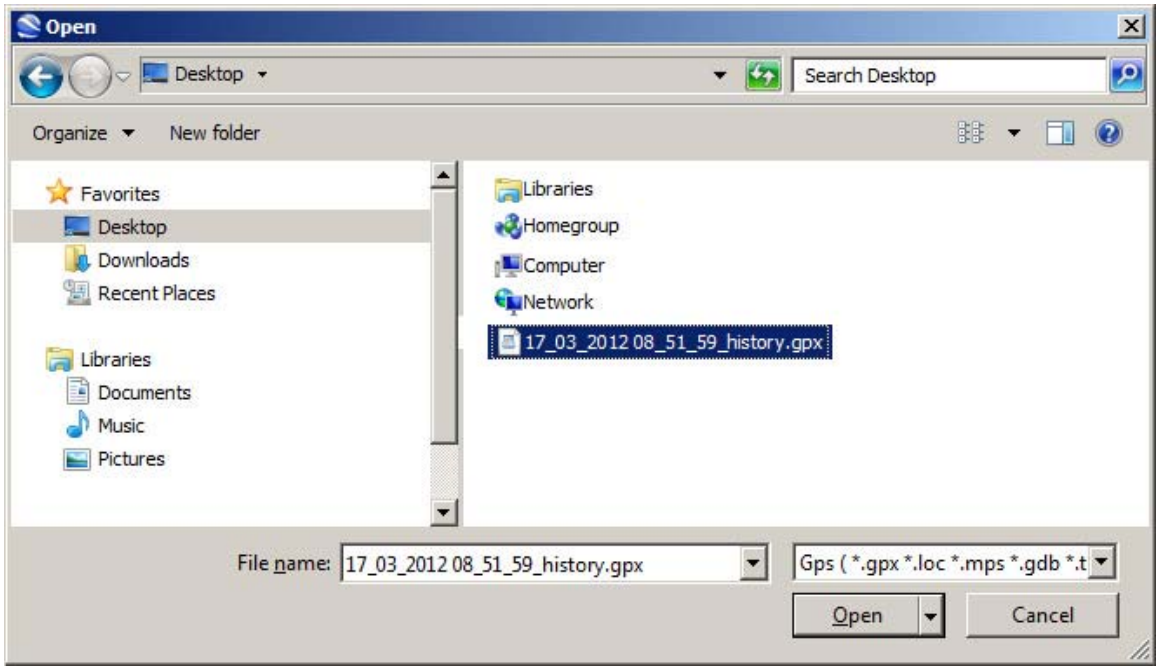


Right-click on the activity you want to export and then select "Export ...". Then select "GPX Files (*.gpx)" or "TCX Files (*.tcx)" as the export file type:-



You may export a single activity, all the activities during a particular week, or your entire library of activities in a single ".gpx" or ".tcx" file.

You can use Google™ Earth to view ".gpx" files. This allows you to locate the activity on Google™ Earth imagery. Select the ".gpx" file from the Google™ Earth "File/Open" menu item. Make sure you select "Gps (*.gpx *.loc *.mps ...)" as the file type to open:-



Discrepancies between ".gpx", ".tcx" and ".fit" files

You may notice some differences between your GMT report when you look at the same activity which has been loaded from different source files. Or you may notice some differences between the GMT report and values in Garmin® Training Center. This happens because the ".gpx" files contain slightly less information about the activity than the other types of file.

In general, the most accurate information is recorded in ".tcx" and ".fit" files and these will give the most accurate statistics in a GMT report.

GMT has been developed using datafiles generated by a single GPS device, the Garmin® Forerunner 110. Results from other devices may differ in unpredictable ways.